

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

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MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2022/2023 (TERM ID 2210)

DPJ5531 – PROGRAMMING IN JAVA

(DIT Students Only)

17 February 2023
9.00 a.m – 11.00 a.m
(2 Hours)

INSTRUCTIONS TO STUDENT:

1. This question paper consists of EIGHT (8) pages (excluding cover page).
2. There are TWO (2) sections.
Section A: Multiple Choice Questions (10 Marks)
Section B: Structured Questions (30 Marks)

Write **ALL** your answers in the Answer Booklet provided

SECTION A: MULTIPLE CHOICE QUESTIONS (MCQ) (10 Marks)

Instruction: Answer *ALL* the questions in this section and shade your answers on the OMR sheet provided.

1. What type of program is use to write Java source code?

- A. A Java integrated development environment (IDE)
- B. Java Development Toolkit (JDK)
- C. Web browser
- D. Web server

2. Java Virtual Machine (JVM) is _____.

- A. a compiler
- B. an interpreter
- C. an applet
- D. a Java machine

3. What is the output of the following code segment?

```
switch(7+10%5) {  
    case 2:  System.out.print("2"); break;  
    case 4:  System.out.print("4"); break;  
    default: System.out.print("0");  
}
```

- A. 4
- B. 2
- C. 0
- D. None of the answers

4. What will be the value of sum after the following code is executed?

```
int sum=2, j=20;  
while (sum < j){  
    sum+=6;  
}
```

- A. 24
- B. 20
- C. 14
- D. None of the answers.

Continued...

5. In inheritance, a base class is also known as a (an) _____.
- A. superclass
 - B. main class
 - C. child class
 - D. extended class
6. Which of the following statement highlighted *Rose* as a derived class of *Flower*?
- A. `public class Rose extends Flower`
 - B. `public class Flower extends Rose`
 - C. `public class Rose derived class Flower`
 - D. `public class Flower derived class Rose`
7. Based on the following code segment, what is the exception type will be thrown if user key-in 'Ten' as shown in **Figure 1**.

```
int num;  
System.out.print ("How many book(s) you want to order:");  
num = new Scanner (System.in).nextInt();  
.....
```

The output & user input:

How many book(s) you want to order: *Ten*

Figure 1 : Sample output and user input

- A. `ArithmeticException`
 - B. `IllegalArgumentException`
 - C. `InputMismatchException`
 - D. `ArrayIndexOutOfBoundsException`
8. The followings blocks are the valid exception handling blocks that valid in Java programs, **EXCEPT** _____.
- A. try block
 - B. catch block
 - C. throw block
 - D. finally block
9. The followings components are the basic components we can add into the frame; **EXCEPT** _____.
- A. label
 - B. button
 - C. package
 - D. text field

Continued...

10. The origin (0,0) of the horizontal axis and vertical axis of applet window is positioned at the _____ of the window.

- A. left-upper corner
- B. upper-left corner
- C. centre of the left edge
- D. centre of the right edge

Continued...

SECTION B: STRUCTURED QUESTIONS (30 Marks)

Instruction: Answer *ALL* the questions in this section and write your answers in the answer booklet provided.

QUESTION 1 [10 MARKS]

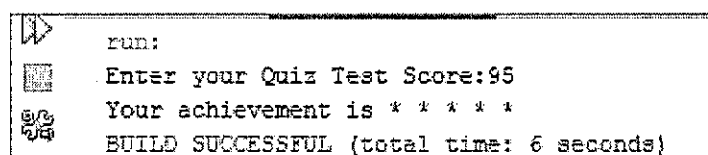
- a) Write a static method named QuizTestAchievement. The method has no argument and not returning any value. The method will get input from user and display a number of 'stars' based on the student's score.

Refer to **Table 1(a)** for the conditions and **Figure 1(b)** for the sample output.

[4 marks]

Score	Star Result
85 - 100	* * * * *
70 - 84.9	* * * *
60 - 69.9	* * *
50 - 59.9	* *
< 50	*

Table 1(a) : Score



```

run:
Enter your Quiz Test Score:95
Your achievement is * * * * *
BUILD SUCCESSFUL (total time: 6 seconds)
  
```

Figure 1(b) : Sample output

- b) The following table (**Table 2**) describes the orders received by Bakery Time for their Curry Puff for the last three days from two hotels. Write code for the following requirements:

- i. Declare and define two-dimensional array named CurryPuff that will store all the values shown in the **Table 2**. [2 marks]

Restaurant/ Day	Day 1	Day 2	Day 3
Restaurant 1	180	160	200
Restaurant 2	160	180	210

Table 2 : Order Quantity

- ii. Find the highest order received from these two hotels and display the output as follows: [4 marks]

Expected output: Restaurant 2, Day 3, 210 packs of Curry Puff

Continued...

QUESTION 2 [10 MARKS]

- a) A superclass has the following method:

```
public void setStatus(String s)
{
    status = s;
}
```

Write a statement that may appear in a subclass that calls this method, passing "Senior" as the argument. [1 mark]

- b) Based on the following code, answer the following questions: [1.5 marks]

```
public class Truck extends Vehicle
```

- i. Which class is the superclass?
- ii. Which class is the subclass?
- iii. Which class constructor will execute first?

- c) Refer to the following class declaration:

```
public class Rectangle
{
    private double height, width;
    public Rectangle (double height, double width)
    {
        this.height = height;
        this.width = width;
    }
    public double getArea()
    {
        return height * width;
    }
}
```

- i. Write a toString method for Rectangle class. The method should return a string containing the height, width and area of the rectangle. [3.5 marks]
- ii. If height and width are declared as protected, what classes have the accessibility to access them? [1 marks]

Continued...

d) Please refer to **Program 1** (SuppTest.java) for the following questions:

```
public class SuppTest
{
    public static void main (String [] arg)
    {
        String msg = null;
        int value;
        try{
            msg = "B3008";
            value = Integer.parseInt(msg);
            System.out.println(value);
        }
        catch(IllegalArgumentException e)
        {
            System.out.println("Bad format.");
        }
        catch(RuntimeException e)
        {
            System.out.println("Not a number.");
        }
        finally{
            System.out.println("Fix this code.");
        }
        System.out.println("So long!");
    }
}
```

Program 1: SuppTest.java

- i. What is the output when the program is executed? [1.5 marks]
- ii. What is the output if the highlighted code in **Program 1** is changed to the following statements? Assuming the package `java.util` has been included in the program and user has keyed-in "`DPJ5531`". [1.5 marks]

```
value = new Scanner(System.in).nextInt();
```

Continued...

QUESTION 3 [10 MARKS]

a) Write Java code for the following tasks: [5 marks]

- iii. Create a text field with 10 columns with "Type here" as the default text. Justify the text to right.
- iv. Create a drop-down button that shows the following texts: "Low", "Average" and "Highest".
- v. Draw a circle with radius 10 and fill it with green color. Use g as the Graphics object.
- vi. Draw a figure that looks like a 'Pacman' with starting points: (100,100) and its radius is set to 15. Use g as the Graphics object.
- vii. Create a text area that contains 5 rows and 10 columns.

b) Write Java code to create a frame as shown in **Figure 3(a)** using the properties as shown in **Table 3** and following properties. [1.5 marks]

(Note: **DO NOT** write/provide the full program. Start your answer from the component creation only)

Properties	Value
Frame Height	100
Frame Width	350
Title Frame	Welcome to Java Class

Table 3 :Frame

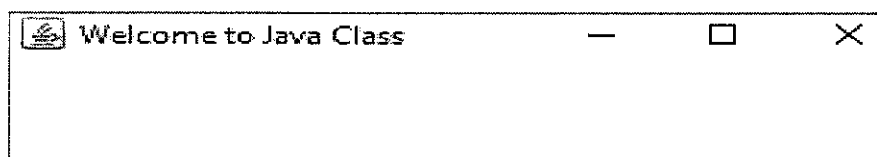


Figure Q3(a)

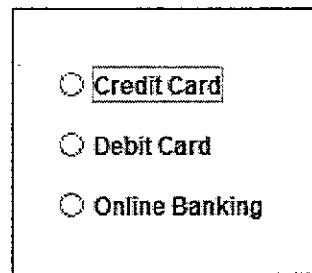
Continued...

- c) Write Java code to create a list of radio button as shown in **Figure 3(b)** and following properties.

[3.5 marks]

(Note: **DO NOT** write/provide the full program. Start your answer from the component creation only)

Properties	Value
Radio Button 1 setBounds	(75,50,100,30)
Radio Button 2 setBounds	(75,80,100,30)
Radio Button 3 setBounds	(75,110,150,30)
Button Group	Yes



The image shows a Java Swing window with a title bar. Inside the window, there is a radio button group. The group contains three radio buttons, each followed by a text label: "Credit Card", "Debit Card", and "Online Banking". The "Credit Card" radio button is selected, indicated by a filled circle.

Figure 3(b)